

Listing of the Claims:

1. (Currently Amended) Trench isolation structure, comprising:

a slab of semiconducting material having a surface and a buried layer which extends parallel to the surface, the buried layer having an upper surface and a lower surface; and

a trench groove extending at least from the surface through the buried layer down to a part of the slab below the buried layer and

the trench groove including a liner of a first insulating material on and extending along a wall of the trench groove from above the upper surface to below the lower surface of the buried layer, and

wherein a remaining part of the trench groove is at least partially filled with a first filler material, and wherein the liner is characterized by an abrupt increase in thickness ; in at least a first part of the trench groove that is substantially in line with ~~the upper and lower surfaces of the buried layer~~, the abrupt increase in thickness defining has a thickness that is larger than a thickness of the liner in a second part of the trench groove, the second part of the trench groove located below the first part.

2. (Previously presented) Trench isolation structure according to claim 1, characterized in that the thickness of the liner in the first part of the trench groove is larger than a thickness of the liner in a third part of the trench groove, the third part of the trench groove located above the first part of the trench groove.

3. (Currently Amended) Trench isolation structure according to claim 1, characterized in that ~~the first part of the trench groove is completely~~ lined filled with the first insulating material.

4. (Previously presented) Trench isolation structure according to claim 3, characterized in that the first part of the trench groove extends substantially in line with the buried layer.

5. (Currently Amended) ~~A Semiconductor assembly, comprising a trench~~
isolation structure according to claim 1, wherein ~~and~~ at least one semiconductor device is
at least partially present on the surface of the slab of semiconducting material, and
wherein the semiconductor device is insulated by ~~means of~~ the trench isolation structure.

6. (New) A semiconductor structure providing trench isolation, the structure comprising:
a slab of semiconducting material having a surface and a buried layer which
extends parallel to the surface;

a first insulating material;

a trench groove extending at least from the surface through the buried layer down
to a part of the slab below the buried layer, the trench groove having a wall that is at least
predominately lined and covered by the first insulating material from above an upper
surface of the buried layer to below a lower surface of the buried layer, and the first
insulating material having a common thickness above and below the buried layer and
having an increased thickness in at least part of the trench groove that is substantially in
line with the buried layer; and

a first filler material at least partially filling a remaining part of the trench groove
in areas above and below the buried layer.

7. (New) A semiconductor structure according to claim 6, characterized in that the
increased thickness is defined by abrupt transitions respectively located near the upper
surface of the buried layer and near the lower surface of the buried layer.

8. (New) A semiconductor structure according to claim 6, characterized in that the
increased thickness is substantially in line with the buried layer.

9. (New) A semiconductor structure according to claim 6, characterized in that the part of
the trench groove extends substantially in line with the buried layer.